

What is claimed is:

1 1. A method for predicting the time required to execute a database command,
2 comprising:
3 measuring a plurality of execution times to complete the database command;
4 recording the measured execution times, thereby creating a time historical record; and
5 using the time historical record to estimate the time required to execute the database
6 command.

1 2. The method of claim 1, wherein said using the time historical record includes
2 analyzing the time historical record by using a statistical analysis technique to estimate the time
3 required to execute the database command.

1 3. The method of claim 2, wherein said analyzing the time historical record includes
2 computing an average execution time based upon information concerning the database command
3 from the time historical record.

1 4. The method of claim 3, wherein the average execution time is
2 $AvT = \sum M(i) / N$, where i is an integer and varies from 1 to N, N equals the number of
3 measurements recorded in the historical record of the execution time of the database command,
4 and M(i) is an ith measurement of the execution time of the database command.

1 5. The method of claim 2, wherein said analyzing the time historical record includes
2 computing a moving range between prior measurements of the database command, based upon
3 information from the time historical record.

1 6. The method of claim 5, wherein the moving range is $MR(i)=M(i+1)-M(i)$, where i
2 is an integer that varies from 1 to N, and M is a measurement of an execution time of the
3 database command.

1 7. The method of claim 2, wherein said analyzing the time historical record includes
2 computing a maximum execution time.

1 8. The method of claim 7, wherein said analyzing the time historical record includes
2 computing the maximum execution time based upon a specified confidence value.

1 9. The method of claim 8, wherein the specified confidence value is configurable
2 based upon a probability that the database command will execute in less time than the computed
3 maximum execution time.

1 10. The method of claim 7, further comprising:
2 executing the database command;
3 measuring a time to execute the database command; and
4 issuing a warning if the measured time to execute the database command exceeds the
5 maximum execution time.

1 11. The method of claim 10, wherein the warning is a warning that a configuration of
2 the database may have changed.

1 12. The method of claim 2, wherein said analyzing the time historical record includes
2 computing a minimum execution time.

1 13. The method of claim 12, wherein said analyzing the time historical record
2 includes computing the minimum execution time based upon a specified confidence value.

1 14. The method of claim 13, wherein the specified confidence value is configurable
2 based upon a probability that the database command will execute in less time than the computed
3 minimum execution time.

1 15. The method of claim 12, further comprising:
2 executing the database command;
3 measuring a time to execute the database command; and
4 issuing a warning if the measured time to execute the database command is less than the
5 minimum execution time.

1 16. The method of claim 15, wherein the warning is a warning that a configuration of
2 the database may have changed.

1 17. The method of claim 1, wherein said database command is a database utility
2 command.

1 18. The method of claim 17, further comprising recording within the time historical
2 record the time of execution of said measured database utility command.

1 19. The method of claim 18, further comprising recording within the time historical
2 record the day of execution of said measured database utility command.

1 20. The method of claim 17, further comprising recording within the time historical
2 record a database utility command option executed with said measured database utility
3 command.

1 21. The method of claim 17, further comprising recording within the time historical
2 record a processor load of a computer executing said measured database utility command.

1 22. The method of claim 17, further comprising recording within the time historical
2 record a storage access load of a computer executing said measured database utility command.

1 23. The method of claim 17, wherein using the time historical record further
2 comprises selecting a historical record for analysis based upon one or more of the following:

3 a) the database utility command;
4 b) an option specified with a previously executed instance of the database utility
5 command;

6 c) the time that the previously executed instance of the database utility command was
7 executed;

8 d) the day that the previously executed instance of the database utility command was
9 executed;

10 e) a processor load on a machine executing a previously executed instance of the database
11 utility command; and

12 f) a storage access load on a machine executing a previously executed instance of the
13 database utility command.

1 24. The method of claim 1, further comprising determining if a plurality of database
2 commands can execute within a fixed timeframe by analyzing each of the plurality of commands
3 based on prior execution time measurements for each of the plurality of database commands.

1 25. The method of claim 1, wherein said database command is a command for which
2 a time required to execute has been estimated, the method further comprising:
3 editing the database command;
4 analyzing the time historical record using a statistical analysis technique to generate an
5 estimate of the time required to execute the edited database command.

1 26. The method of claim 1, wherein said database command is a command file
2 containing a plurality of database commands.

1 27. The method of claim 26, wherein times required to execute database commands
2 within said command file have been estimated, the method further comprising:
3 editing the database command file;
4 analyzing the time historical record using a statistical analysis technique to generate new
5 estimates of the time required to execute database commands contained within the edited
6 command file.

1 28. An apparatus for predicting the time required to execute a database command,
2 comprising:
3 a historical record module having recorded therein a plurality of measurements of
4 execution times of the database command;
5 an analysis module coupled to the historical record module and configured to analyze the
6 measurements recorded in the historical record module; and

7 a utility scheduling module configured to determine whether to execute the database
8 command based on an analysis of the database command measurements.

1 29. The apparatus of claim 28, wherein the analysis module is configured to
2 statistically analyze the time historical record to estimate the time required to execute the
3 database command.

1 30. The apparatus of claim 28, wherein the database command is a database utility
2 command.

1 31. The apparatus of claim 30, wherein the utility scheduling module is configured to
2 determine whether a plurality of database commands can execute within a fixed timeframe based
3 on the analysis module analyzing measurements relating the plurality of measurements recorded
4 in the historical record module.

1 32. The apparatus of claim 30, further comprising a user interface module configured
2 for enabling a user to specify the database command to be analyzed.

1 33. An apparatus for predicting a time for executing a database command,
2 comprising:
3 means for measuring a time to complete the database command;
4 means for recording the measured time, thereby creating a time historical record; and
5 means for analyzing the time historical record to estimate the time required to execute the
6 database utility command.

1 34. The apparatus of claim 33, wherein said means for analyzing uses a statistical
2 analysis technique to analyze the time historical record to estimate the time required to execute
3 the database command.

1 35. A computer program embodied on a computer readable medium for predicting a
2 time for executing a database command, comprising:

3 program instructions for measuring a time to complete execution of the database
4 command;

5 program instructions for recording the measured time, thereby creating a time historical
6 record; and

7 program instructions for analyzing the time historical record to estimate the time required
8 to execute the database utility command.

1 36. The computer program of claim 35, wherein said program instructions for
2 analyzing use a statistical analysis technique to analyze the time historical record to estimate the
3 time required to execute the database command.